

REMARKS

The foregoing claim amendments amend claims 1, 3, 4, 10, 11 and 17, and add claim 19. Pending in the application are claims 1-11, 13 and 17-19, of which claims 1, 13 and 17-19 are independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Interview and Claim Amendments

Applicants thank the Examiner for allowing an interview to discuss the patentability of the pending application. Based on the discussion with the Examiner in the interview, Applicants amend independent claims 1 and 17, and add independent claim 19 to clarify the scope of the claimed invention. In particular, the independent claims are amended to recite that *the temperature of the exhaust gas is controlled or increased by compressing the exhaust before the exhaust gas is introduced into the heat exchange*. Support for the amendment can be found throughout the original application as filed, at least, for example, in Figs. 1 and 5-7 and corresponding description. No new matter is added.

35 U.S.C. §103 Rejections

Claims 1-11, 13 and 17-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 6,106,964 (“Voss”) in view of U.S. Patent Number 6,497,971 (“Reiser”). Applicants respectfully traverse this rejection for the following reasons.

No Motivation To Combine Reference Teachings

Applicants respectfully submit that there is no motivation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art, to combine the teachings of these references because the combination of the prior art references would change the principle of operation of prior art inventions. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Reiser teaches blowers for delivering input reactant to a fuel cell while Voss teaches a heat exchanger for exchanging heat between input gas and exhaust gas. If the blowers taught in Reiser are combined with the heat exchanger taught in Voss, the blowers should be located upstream of the heat exchanger when the blowers “push” the input

reactant to the fuel cell, or downstream of the heat exchanger when the blowers “pull” the input reactant through the fuel cell.

In contrast, the compressor of the claimed invention is located between the fuel cell and the heat exchanger to compress the exhaust gas exhausted from the fuel cell and to provide the compressed exhaust gas to the heat exchanger, as recited in claim 1. If the blowers taught in Reiser are located between the fuel cell and the heat exchanger taught in Voss, the combined system does not operate because the blowers push or pull the input reactant for delivering the input reactant to the fuel cell. Therefore, the combination of the reference teachings would require a substantial reconstruction and redesign of the elements shown in the prior art references.

References Not Teach All of Limitations of Claims

Additionally, Applicants respectfully submit that the cited prior art references, even if combined, do not teach all of the features of the claimed invention.

Independent claim 1 recites a gas supply apparatus including a heat exchanger to which a supply gas having a negative pressure and an exhaust gas compressed by a compressor are introduced. *The temperature of the exhaust gas is increased by compressing the exhaust before the exhaust gas is introduced into the heat exchanger.* Independent claims 13 and 17-18 include similar limitations.

Applicants submit that Voss and Reiser do not teach or suggest that the temperature of the exhaust gas exhausted from a fuel cell is controlled or increased by compressing the exhaust before the exhaust gas is introduced into the heat exchanger, as recited in claims 1, 13 and 17-18.

The Voss reference describes a water-heat exchange type of humidifier 200. The Examiner recognizes that Voss does not disclose compressing exhaust gas and adjusting the temperature of the exhaust gas, as recited in claims 1, 13 and 17-18. Reiser is cited to compensate for the deficiencies of the Voss reference. The Examiner notes that the blowers taught in Reiser are functionally equivalent to the compressor of the claimed invention. Applicants respectfully disagree. Applicants submit that Reiser does not teach or suggest that

blowers compress the exhaust gas exhausted from the fuel cell and adjust the temperature of the exhaust gas before the exhaust gas is introduced into the heat exchanger, as recited in claims 1, 13 and 17-18.

Reiser teaches blowers for delivering input reactant to a fuel cell. Reiser teaches that the blowers “push” the input reactant to the fuel cell, or “pull” the input reactant through the fuel cell. The blowers taught in Reiser merely circulate input reactant through the fuel cell. It appears that the temperature of the input reactant is adjusted by varying the amount of the circulation of the exhaust gas that has been heated only by the fuel cell. The Reiser reference, however, does not teach or suggest that the temperature of the exhaust gas be adjusted by compressing the exhaust gas before the exhaust gas is introduced into the heat exchanger, as recited in claims 1, 13 and 17-18.

For at least these reasons, Applicants respectfully submit that claims 1-11, 13 and 17-18 distinguish patentably over the cited references.

Claim Rejections – Double Patenting

Claims 1, 2, 8, 13, 17 and 18 are provisionally rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims 1-12 of co-pending Application No. 09/908,204 (U.S. pre-grant publication No. 2002/0034669). Applicants submit a terminal disclaimer in compliance with 37 C.F.R. 1.321(c) to overcome the provisional rejection based on a non-statutory double patenting ground. In light of the terminal disclaimer, Applicants submit that claims 1, 2, 8, 13, 17 are in condition for allowance and request the Examiner pass the claims to allowance.

New Claim

Applicants add new claim 19 directed to a gas supplying apparatus in a fuel cell. New claim 19 clarifies that the compressor is positioned between the fuel cell and the heat exchanger for compressing the exhaust gas before the exhaust gas is introduced into the heat exchanger. New claim 19 also recites that the compressor controls the temperature of the


exhaust gas before the exhaust gas is introduced into the heat exchanger. In light of the arguments set forth above, Applicants submit that new claim 19 is in condition for allowance.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If, however, the Examiner considers that obstacles to allowance of these claims persist, we invite a telephone call to Applicants' representative.

Dated: November 9, 2004

Respectfully submitted,

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